

## SECTION VII.—WEATHER AND DATA FOR THE MONTH.

### THE WEATHER OF THE MONTH.

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*Pressure.*—The distribution of the mean atmospheric pressure over the United States and Canada and the prevailing direction of the winds are graphically shown on Chart VII, while the average values for the month at the several stations, with the departures from the normal, are shown in Tables I and III.

The mean atmospheric pressure for the month as a whole was below normal in the South Atlantic and east Gulf States, the middle and southern portions of the Mountain districts of the West, and thence westward to the Pacific coast, the greatest minus departures appearing in central and northern California. Over all other portions of the country the means were above the normal for the month, with especially marked plus departures over northern districts from the Atlantic to the Rocky Mountains, in the lower Missouri Valley and Central Plains States, and also over the Canadian Provinces.

During the first day or two of the month high pressure obtained quite generally throughout the country, save over the Pacific Coast States, where relatively low readings were recorded, but from about the 3d to the end of the first decade barometric conditions were unsettled over most districts, with tendencies to relatively low readings. Extensive high pressure over eastern districts during the first few days of the second decade was followed by a marked depression that moved rapidly from the Gulf to the Canadian Maritime Provinces on the 13th–14th, giving unusually low barometer readings in passing over the northeastern States. With the disappearance to sea of the above-mentioned storm, rather marked and extensive high pressure covered most districts during the following few days, but near the close of the second decade conditions again became unsettled, the weather map of the 19th showing four distinct storm centers. During the first half of the third decade relatively high pressure was the rule over most districts, but on the morning of the 29th a storm of marked energy covered the Mississippi Valley and moved thence northeastward to the Gulf of St. Lawrence by the following day. The month closed with generally high pressure and clear skies prevailing in most districts.

The distribution of the highs and lows was such as to favor the frequent occurrence of winds from a northerly direction over most districts east of the Rocky Mountains, while to the westward the usual variable winds prevailed.

*Temperature.*—Warm weather, for the season of the year, marked the first few days of the month from the Mississippi Valley eastward, and moderate temperatures prevailed thereafter until about the end of the first decade in most eastern districts.

By the 10th strong high pressure had moved into the Dakotas, and considerably colder weather overspread much of the Mountain and Plateau region. The cold area advanced rapidly southward and eastward, with

freezing temperatures over the east Gulf and South Atlantic States and frost as far south as central Florida. However, there was a quick return to warmer weather over these districts, but lower temperatures had again set in over the Mountain regions of the West and the Great Plains States, and by the morning of the 14th low temperatures had again overspread the central valleys and Southern States, and it continued cold in the far West. By the morning of the 16th the cold wave had overspread nearly all portions of the country with temperatures below zero as far south as central Kansas and the mountain districts of Virginia, and below freezing over the Gulf and South Atlantic coasts.

Beginning about the 21st cold weather again overspread the Mountain districts of the West, and during the following few days it extended to practically all portions of the country, with unusually low temperatures prevailing along the northern border. From the 27th to the 29th there was a general moderation, but during the last days of the month colder weather again overspread the central and eastern States, while in other portions of the country there was a tendency to more seasonable temperatures.

For the month as a whole the average temperature was below the normal in all districts, save in extreme southern Florida. Throughout the central valleys and in the Plateau region the month was among the coldest Decembers of record.

Day temperatures were unusually high on the 1st and 2d at points in the Lake region and North Atlantic States, but otherwise they were within the limits of previous years. At points in North Dakota they did not go above freezing during the entire month.

Minimum temperatures below freezing occurred over all portions of the country, save in central and southern Florida, extreme southern Texas, southwestern Arizona, and along the Pacific coast, while readings more than 30° below zero occurred at exposed points in New England, and they were somewhat lower in portions of Minnesota. During the cold waves about the middle of the month and near the end some of the lowest temperatures on record for December were reported in the middle Mississippi and Ohio Valleys and over the northeastern States.

*Precipitation.*—No well-defined storm area crossed the country during the first decade of the month, but during this period weather conditions were unsettled over most districts to eastward of the Rocky Mountains and precipitation was of more or less frequent occurrence, with some heavy rainfall during the first few days in portions of the Gulf region, more than 7 inches occurring at Houston, Tex., during the 24 hours ending at 8 a. m. of the 2d. During the above-named period pressure was likewise comparatively low in the Pacific coast region, where general and beneficial rains occurred, especially in California, where the need of moisture was beginning to be seriously felt.

During the first half of the second decade a disturbance moved rapidly eastward from the far Southwest to the east Gulf States, and thence northeastward, accompanied by precipitation over much of the country, with heavy

rain along the Atlantic coast and heavy snow in portions of the Appalachian Mountain districts, the upper Ohio Valley, the lower Lake region, and parts of New York and New England. With the passing of this storm fair weather was the rule during the following few days, but near the close of the decade weather conditions again became unsettled over much of the country, with general snow over northern districts and rain over the central and southern portion of the country east of the Rocky Mountains.

During the first half of the third decade a disturbance moved from southern California eastward across the Southern States and disappeared off the South Atlantic coast about the 26th, accompanied by snow in most central and northern districts and rain throughout the South. During the following few days no widespread precipitation occurred, but a well-defined disturbance passed from the Mississippi Valley to the Gulf of St. Lawrence during the 29th and 30th, causing general precipitation from the Plains States eastward. This storm was followed by fair weather, which prevailed generally at the close of the month.

For the month as a whole the precipitation was generous and above normal over much of the country from the Plains region eastward, some portions of those districts receiving large amounts, particularly parts of Texas, Arkansas, Mississippi, and Tennessee, where 8 inches or more occurred. Precipitation was heavy also over the southern portions of the Rocky Mountain and Plateau regions and in parts of California.

In the northern Pacific coast States, over the northern and central portions of the mountain districts of the West, the northern Plains States, and the upper Mississippi Valley the amounts were, as a rule, comparatively light and less than the monthly normal, while portions of the southeastern States, the upper Lake region, and New England likewise received less than the normal amount of precipitation for December.

#### GENERAL SUMMARY.

The month as a whole was cold, cloudy, and wet over the districts from the Mississippi River eastward, these conditions being especially pronounced in the east Gulf and South Atlantic States, where all farming operations were practically at a standstill and considerable damage occurred to the trucking interests on account of the frequent and severe changes in temperature and the general lack of sunshine.

Over the districts to westward of the Mississippi the month was generally cold and dry, except in the west Gulf States, California, and portions of Arizona and New Mexico, where more than the average amounts of precipitation occurred. More than the usual snow covering prevailed over the States from the Plains region eastward, and a large portion of the winter grain-growing districts was well protected during the cold periods of the month, while at the same time there was a general absence of snow over the great cattle ranges, which permitted continued grazing.

In the western Mountain regions there appears to have been considerable snow in the higher elevations of California and portions of Arizona and New Mexico, which, with good rains at the lower elevations of those States, assure a good supply of water for irrigation and other purposes during the coming spring and summer. However, elsewhere in the Mountain districts the fall of snow was light and the stored depth in the high ranges was much below the normal.

Ice formed unusually early in the month over all districts where it is expected at some time during the winter, and large supplies of excellent quality had been harvested at the end of the month, especially in the rural districts.

#### Average accumulated departures for December, 1914.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	° F.	° F.	° F.	In.	In.	In.	P. ct.		P. ct.	
New England.....	37.3	-2.1	-8.5	3.28	-0.10	-6.20	6.2	+0.1	75	-1
Middle Atlantic.....	31.8	-3.2	-1.2	4.87	+1.70	-6.30	6.9	+1.1	78	+3
South Atlantic.....	44.9	-2.3	+1.7	4.26	+0.60	-11.10	7.8	+2.9	82	+4
Florida Peninsula.....	66.0	+1.2	-4.0	5.18	+3.10	-6.30	6.9	+2.9	85	+3
East Gulf.....	45.6	-3.5	-6.1	4.28	-0.20	-3.20	7.5	+2.0	79	+2
West Gulf.....	42.4	-6.7	+2.2	4.28	+1.40	-3.20	7.4	+2.2	82	+8
Ohio Valley and Tennessee.....	31.4	-5.4	+1.2	4.72	+1.30	-6.90	7.8	+1.5	82	+6
Lower Lakes.....	24.9	-4.3	-7.9	3.61	+0.10	-2.90	7.9	+0.2	80	+2
Upper Lakes.....	18.8	-4.7	+6.8	1.45	-0.70	-1.90	7.5	+0.2	81	-1
North Dakota.....	6.4	-5.5	+24.3	6.34	-0.30	+2.00	5.8	+0.4	84	+5
Upper Mississippi Valley.....	20.5	-6.9	+17.9	1.60	-0.20	-4.50	7.0	+1.2	84	+6
Missouri Valley.....	19.6	-7.3	+25.8	1.16	+0.10	-0.40	6.6	+1.4	83	+8
Northern Slope.....	17.2	-6.5	+19.4	0.41	-0.60	-2.30	5.7	+0.5	86	+18
Middle slope.....	24.9	-8.1	+20.6	0.95	+0.20	-3.90	5.9	+1.8	78	+12
Southern slope.....	37.0	-6.8	+4.0	1.25	+0.40	-6.50	6.2	+1.2	89	+14
Southern Plateau.....	37.1	-6.0	+2.5	2.10	+1.50	-1.10	4.7	+1.5	76	+30
Middle Plateau.....	24.4	-6.9	+5.3	0.50	-0.60	-0.90	5.6	+0.9	75	+5
Northern Plateau.....	23.8	-8.2	+13.7	0.65	-1.10	-2.00	6.4	-0.4	78	-2
North Pacific.....	39.1	-2.5	+14.7	2.36	-5.60	-2.50	6.7	-1.1	81	-5
Middle Pacific.....	45.2	-3.2	+4.9	5.20	+0.60	-1.90	6.0	+0.6	81	0
South Pacific.....	50.8	-2.2	+19.7	3.43	+1.30	+3.30	5.8	+1.5	76	+7

#### Maximum wind velocities, December, 1914.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Mt./hr.				Mt./hr.	
Block Island, R. I.....	6	64	ne.	Mt. Weather, Va....	21	54	nw.
Do.....	7	71	ne.	Do.....	30	70	nw.
Do.....	8	60	se.	Mt. Tamalpais, Cal..	19	51	nw.
Do.....	13	60	se.	Do.....	21	58	n.
Do.....	14	56	se.	Do.....	22	54	n.
Do.....	22	53	w.	Nantucket, Mass....	6	56	ne
Buffalo, N. Y.....	14	72	w.	Do.....	7	68	ne
Do.....	15	60	sw.	Do.....	14	60	se.
Do.....	19	60	w.	New York, N. Y.....	13	59	s.
Do.....	21	78	sw.	Do.....	14	62	nw.
Do.....	23	72	sw.	Do.....	20	54	nw.
Do.....	23	50	w.	North Head, Wash..	30	50	se.
Do.....	29	58	sw.	Do.....	31	52	se.
Do.....	30	64	sw.	Point Reyes Light, Cal.....	2	53	s.
Canton, N. Y.....	31	53	w.	Do.....	9	54	s.
Cheyenne, Wyo.....	31	56	w.	Providence, R. I....	14	50	se.
Duluth, Minn.....	29	53	nw.	Tatoosh Island, Wash.....	7	57	e.
Eastport, Me.....	14	70	se.	Do.....	8	53	e.
Mt. Weather, Va....	19	52	nw.				
Do.....	20	56	nw.				